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Food Safety Risks and Consumer Behavior

by

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Introduction

Shoppers exhibit uniformly high levels of concern about food safety (Hammonds). There is limited information, however, about the link between consumer attitudes toward food safety and subsequent shopping behavior. Marketing strategies predicated on food safety considerations will falter if consumers' shopping habits do not adequately reflect their stated beliefs.

The delineation of marketing strategies for food safety clearly has immediate application to the merchandising efforts of food processing and retailing firms. Consumer interests in safe and wholesome foods are forcing food manufactures and distributors to offer products perceived as having lower safety risks. Opportunities exist for progressive producers and marketers to build and capitalize on emerging markets for new product attributes. It is important, therefore, to determine how consumer food demand may be influenced by product attributes related to food safety. This information is necessary to identify appropriate marketing strategies for producers, processors and retailers interested in creating market niches for "safer" food products.

The purposes of this study are threefold. The first objective is to characterize shoppers according to attitudes and behavior regarding food safety and health issues. This analysis forms the basis for the second objective, which is to project potential consumer receptiveness to marketing strategies emphasizing food safety attributes. The first two objectives both contribute to fulfilling the final objective, which is to formulate product differentiation strategies as tools for marketing food safety.

Cluster analysis is the statistical technique used to characterize shoppers by attitudes and actions regarding food safety. The following section describes the implementation of cluster analysis procedures in this study. The third section presents results of the cluster analysis. Implications for food marketing strategies are drawn in the final section of the paper.

Methods

The Fastclus procedure in the Statistical Analysis System (SAS) package was used to identify groups of consumers with similar shopping behaviors and attitudes on health and nutrition issues.[1] Data were obtained from the 1987 Food Marketing Institute survey of supermarket attitudes of 1,007 consumers. Data for the survey, the sixteenth in a series, were collected through nationwide telephone interviews in January 1987 and "only heads of households who have primary or equally-shared responsibility for food shopping, and who had shopped for groceries in the past two weeks were included in the survey" (Food Marketing Institute, p. 47). Survey questions measured shopper buying preferences and desires, health and nutrition concerns, time-saving and economizing measures and demographics.[2] Categories selected for the cluster analysis included responses to survey questions

involving food safety attitudes and actions and marketing responsiveness.

Cluster Characteristics

Cluster analysis identified three distinct groups of consumers.[3] Cautious Spendthrifts were concerned about health and safety issues and were the least conscious of price. Cautious Economizers, by contrast, were very price conscious but were also concerned about health and nutrition issues. Cautious Economizers were more likely than Cautious Spendthrifts to act on their concerns. Reckless Spendthrifts were neither very concerned about health and nutrition issues nor worried about price.

Cautious Spendthrifts, representing 38.7 percent of the population, were highly concerned about health and nutrition issues. These shoppers identified themselves as concerned about the safety of some ingredients added to processed foods and claimed to avoid buying certain foods because of safety concerns. Cautious Spendthrifts were likely to check dates on foods, preferred tamper-resistant packaging, and were least likely to agree with the statement that they trust supermarket food. They were highly concerned about additives and preservatives, nitrates, residues and antibiotics as well as sugar, cholesterol, fats and salt.

Cautious Spendthrifts, however, were less likely than the health conscious Cautious Economizers to pay attention to the list of ingredients on processed foods or read labels for nutritional content. Cautious Spendthrifts apparently were concerned about their families' health, with most stating that they frequently served nutritional snacks and selected food to balance the family's diet. However, they only occasionally checked labels for protein, fat and caloric content, and government grading on meat and poultry or selected recipes for their nutritional content. Cautious Spendthrifts considered the availability of nutrition and health information in grocery stores to be only somewhat important, thus, relying on other sources for their information.

Cautious Spendthrifts appear to be difficult to reach through traditional marketing efforts. Compared to other shoppers, they were less likely to consider price an important determinant in choosing a supermarket and therefore would be less responsive to price-related advertising. Cautious Spendthrifts only occasionally looked in newspapers for grocery specials, used price-off coupons or compared prices at different supermarkets. Not surprisingly, these shoppers had the highest dollar expenditures on groceries per household member per week--$28.25.

In terms of demographics, Cautious Spendthrifts were evenly represented across the country. Their average age was 43 and they had a higher representation of males (44%) than did the survey population. Cautious Spendthrifts had a higher than average household income (approximately $29,854 per year) and were more likely to have had at least some college education (55.4%). A high percentage of these shoppers were single (37%) and 63 percent of them worked outside the home. The average number of children for these shoppers was 1.88.

Cautious Economizers, representing 37.3 percent of the population, were highly concerned about health and nutrition issues and were most likely to act on those concerns. Like Cautious Spendthrifts, Cautious Economizers served nutritional snacks and selected foods to balance their families' diets. Cautious Economizers, however, were more likely to check labels for protein, fat and caloric content. They were most likely to pay attention to the list of ingredients on processed foods and read labels for nutritional content. Cautious Economizers also checked the packaging and dates on foods. Like Cautious Spendthrifts, Cautious Economizers were concerned about some ingredients added to processed foods and would not buy food whose safety was in question. Similarly, Cautious Economizers were highly concerned about additives and preservatives, nitrates, residues and antibiotics, as well as sugar, cholesterol, fats and salt.

Unlike Cautious Spendthrifts, however, Cautious Economizers were responsive to traditional marketing efforts such as newspaper advertising and price-off coupons, and were most likely to compare prices or switch supermarkets for specials. Cautious Economizers were more likely to browse when shopping and were most likely to want nutrition and health information available in stores. These shoppers considered price a very important determinant for where they shopped and also searched for items on sale. They had the lowest food bill per week per household member--$23.77.

Demographically, Cautious Economizers were significantly different from other shoppers. Cautious Economizers on average were older (46) and were predominantly female (69% compared to the survey population of 60%). They were more highly concentrated in the lower income bracket (their average income of $25,836 was significantly lower than that of the other clusters) and had lower levels of education, with only 17

percent having graduated from college. Cautious Economizers had the largest proportion of married shoppers (75%) and only 49 percent of the cluster worked outside the home. Compared to the other groups, slightly more of these shoppers were from the South and slightly fewer from the West. The average number of children for this group was 2.12, the largest of the three clusters.

Reckless Spendthrifts, representing 23.9 percent of the population, were the least concerned about health and nutrition issues. They were highly unlikely to pay attention to ingredients or read labels for nutritional content and were relatively unconcerned about food safety issues. These shoppers were least likely to state that they would not buy goods identified as potentially unsafe. Reckless Spendthrifts did check expiration dates and packaging but not as frequently as other shoppers and were least likely to check government grading on meat and poultry. They were much less concerned about additives and preservatives, residues and other health issues. There was an even wider difference between Reckless Spendthrifts and others in behavior relating to family nutrition; Reckless Spendthrifts were least likely to select nutritious recipes, select food to balance their families' diets, serve nutritional snacks or check labels for protein, fat and caloric content. They were least likely to have changed their methods of cooking or preparing food in the last three to five years.

Reckless Spendthrifts, like Cautious Spendthrifts, rarely responded to traditional marketing efforts, though they were more likely than Cautious Spendthrifts to use coupons or read newspapers for specials. Reckless Spendthrifts seem unlikely to be bargain hunters and unlikely to use price as a deciding factor in where to shop. Their average grocery bill was $26.37 per person per week. Lack of time may be a factor for those shoppers as they were least likely to want to browse when shopping. They were also least likely to want nutrition and health information available for shoppers at the store.

Reckless Spendthrifts were demographically similar to Cautious Spendthrifts with few statistically significant differences. Reckless Spendthrifts were young, with an average age of 42, and had a high representation of males (46% compared with the survey population of 40%). They had a high average income ($31,402) and high levels of education -- more than 30 percent graduated from college. Most (67%) were married and 67 percent worked outside the home. Unlike other clusters, however, whites had a significantly higher representation than non-whites among the Reckless Spendthrifts. Whites constituted 94 percent of the Reckless Spendthrifts, compared with 87 percent of the survey population. There was a slightly higher representation from the West and slightly lower from the South among these shoppers.

Summary and Conclusions

The analysis presented in this paper focused on assessing potential consumer response to marketing efforts targeted toward food safety issues. Using data obtained from the 1987 Food Marketing Institute survey of 1,007 consumers, three distinct groups of consumers were identified through cluster analysis. Selection criteria for clustering involved shopper responses to a series of questions concerning health, nutrition and marketing issues. The following discussion highlights the main findings of the analysis and attempts to draw implications for the marketing of food attributes related to safety concerns.

The three groups of shoppers identified by the cluster analysis were distinct from each other in terms of attitudes toward health, nutrition, and food safety as well as in responsiveness to price and sales promotion efforts. Hence, different marketing strategies may be necessary to reach each group.

Cautious Spendthrifts and Economizers both were highly concerned about food safety and health issues, but the Economizers generally exhibited the highest level of concern. Although shoppers in both groups generally acted on their concerns in making food purchases, the Economizers did so more often. The fact that Economizers had more time to spend in the stores may explain these findings. Recall that these shoppers were more likely to browse and fewer of these shoppers held employment outside the home. Although all Cautious shoppers shared similar concerns and generally acted on these concerns, the shoppers in these two clusters exhibited large differences in terms of responsiveness to economic factors. Economizers were very price responsive, used coupons, and paid attention to advertised specials. In other words, Cautious Economizers searched more intensively for lower prices than did Cautious Spendthrifts. This difference in shopping behavior may be explained by the greater availability of time and lower average family income for the Economizers.

Product differentiation strategies emphasizing food safety attributes likely would appeal to shoppers similar to those in both of the "cautious" clusters. Cautious Spendthrifts may be willing to pay higher prices for "safer" foods, but

would be difficult to reach through traditional marketing campaigns. These shoppers did not pay attention to newspaper advertisements or coupons like Cautious Economizers, nor were they very likely to compare supermarkets or go to a different supermarket for an advertised special. Although Economizers were more responsive to these types of marketing efforts, price was a prime consideration for them. Hence, these shoppers probably would not be willing to pay much of a premium for food safety attributes.

Cautious Spendthrifts and Economizers both considered quality produce in supermarkets to be very important. Both groups likely would respond to certification programs such as screening for pesticide residues. Again, however, Economizers may have to be enticed with a reasonable price while Spendthrifts may need to be reached through more innovative advertising and promotion efforts. Radio or television advertisements and large, eye-catching exterior displays may be more likely to attract Cautious Spendthrifts than would print advertisements or in-store promotions.

Unlike other shoppers, Reckless Spendthrifts were largely unconcerned about health issues and food safety. Consequently they were much less likely to take time to ensure the foods they purchased were wholesome and safe to eat. The level of price responsiveness exhibited by Reckless Spendthrifts fell between the levels of the other two clusters, yet was most similar to the level of Cautious Spendthrifts. That is, Reckless Spendthrifts exhibited relatively low sensitivity to price and thus could not be classified as bargain hunters. As with Cautious Spendthrifts, higher than average levels of income and the lack of time may explain the generally lower levels of market responsiveness for Reckless Spendthrifts.

Less obvious is the reason for the sharp contrast in level of health and safety concerns between Reckless and Cautious spendthrifts. Even though Cautious Spendthrifts took more time browsing, Reckless Spendthrifts looked for specials and used coupons more often than did Cautious Spendthrifts. For Cautious Spendthrifts, health and nutritional aspects take precedence, while Reckless Spendthrifts may put a bit more emphasis on watching their pennies than worrying about what they eat. Some of the differences in health awareness may be explained by the fact that Reckless shoppers were younger and included a larger proportion of males compared to Cautious Spendthrifts. These differences in demographic composition, however, were found to be statistically insignificant. Racial composition was the only significant difference between the two clusters that could be identified from the available demographic characteristics. The largely unconcerned shoppers in the Reckless Spendthrifts cluster consisted of a much larger percentage of whites than either of the other two clusters. The racial differences actually may reflect the composition of shoppers in rural versus urban areas, with a larger proportion of Reckless Spendthrifts from rural area.

For further development of marketing and product differentiation strategies, the analysis suggests that Cautious Spendthrifts may be willing to pay a premium for nutritious and safe products. Cautious Economizers also are certainly in the market for health products, but price is also a concern to them. Thus, there is a need to identify the trade off between price and food safety for the Economizers. Like the Cautious Spendthrifts, Reckless Spendthrifts also may be willing to pay a premium for food safety attributes if they could be persuaded that the wholesomeness of their diets should be a concern.

Endnotes

[1]Cluster analysis places observations into groups dictated by the data, and not defined a priori, such that observations within groups tend to be similar and observations assigned to different groups tend to be dissimilar. In the Fastclus procedure (recommended for large data sets), a set of points called cluster seeds is selected as a first approximation of the cluster means. Each observation is assigned to the nearest seed to form temporary clusters. The means of the temporary clusters then replace the seeds and the process iterates until no further changes occur in the cluster (SAS).

[2]Survey results are available in *Trends: Consumer Attitudes and the Supermarket 1987.*

[3]For a more complete description of the clusters, see McCormick, McGuirk, and Preston.

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